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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/914,928 | 09/06/2001 | Loick Verger | 034299-346 | 5963 |

7590 06/16/2004

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| EXAMINER |
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SUNG, CHRISTINE

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| ART UNIT | PAPER NUMBER |
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2878

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,928

Applicant(s)

VERGER ET AL.

Examiner

Christine Sung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The request for continued examination filed on June 1, 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei (US Patent 5,435,608) in view of Kobayashi et al (US Patent 4,907,040).

Regarding claims 1, 2 and 7, Wei et al discloses a radiation imaging device comprising a detection matrix made of a semiconducting material comprising of pixels (Fig 1 f, element 110) to convert incident radiation into electric charges (Column 3, lines 55-59) and an electrical charges reading panel comprising several electronic devices (column 3, lines 55-66), each electronic device being integrated by pixel (column 3, lines 63-66), characterized in that each detecting matrix is made of a layer of semiconducting material deposited in vapor phase on the electric charges reading panel (Column 5, line 60-Column 6, line 10). Wei does not specifically disclose that the detection layer is made of a continuous layer of semiconducting material deposited in vapor phase. However, this placement and method of placement of semiconducting material is well known in the art, as demonstrated by Kobayashi (column 24, lines 49-52). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the continuous layer of semiconducting material deposited in vapor phase,

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as a continuous layer would offer a greater detection area, thus increasing the effective detection area.

Regarding claim 3, although Wei et al. does not explicitly state that the specific temperature of the deposition process of the semiconducting material be at a temperature that does not damage the electronic devices, it would have been obvious to one having ordinary skill in the art to have chosen a semiconducting material whose vaporization temperature would not exceed the highest tolerable temperature of the electronic devices, so as to not damage the device.

Regarding claims 5 and 6, the examiner interprets the claims to disclose that the feature sizes of the device are on the order of microns. Therefore, since the feature sizes of the device disclosed by Wei et al. are of the micron order, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the device disclosed by Wei et al., as the specific feature size of the device would only be a matter of design choice for applications such as radiation imaging, where micron sized feature sizes would further enhance imaging quality.

Regarding claim 8, Kobayashi discloses using an amorphous silicon semiconducting material. Kobayashi discloses the claimed invention except for using crystalline silicon as the semiconducting material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used crystalline silicon, since it has been held to be within the general skill of a working in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

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4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. (US Patent 5,435,608) in view of Kobayashi et al (US Patent 4,907,040) and further in view of Spartiotis (UK Patent Application 2319394).

Wei et al. in view of Kobayashi et al. discloses the limitations set forth in claim 2 but does not specifically disclose the type of semiconducting material used for the detection pixels. Spartiotis discloses in the abstract that CdTe can be used as a semiconducting material. Spartiotis demonstrates that CdTe may be used as a detection material, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the material disclosed by Spartiotis with the invention disclosed by Wei et al. in view of Kobayashi, as it is only a matter of design choice. It would have been obvious to one having ordinary skill in the art to have used a material such as CdTe, because, as the Spartiotis reference discloses, CdTe is often used as a conventional detector material because it is used widely for imaging applications.

Response to Arguments

5. Applicant's arguments filed June 1, 2004 have been fully considered but they are not persuasive.

6. Applicant's argument that there is no suggestion or motivation to combine reference teachings is not persuasive.

As described above, Wei discloses the limitations of the independent claims except that the detection layer is made of a continuous layer of semiconducting material deposited in vapor phase on the reading panel. Vapor deposition of a continuous layer is well known in the art, and Kobayashi is merely used to affirm this statement. One of ordinary skill in the art would be

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motivated to combine Wei in view of Kobayashi because a vapor deposited continuous layer would increase the effective detection area, rather than having a matrix of detection areas with a smaller effective detection area, as disclosed by Wei. Although Kobayashi is drawn to a Schottky barrier device, the purpose of the reference is to provide evidence that vapor deposition of a continuous layer is well known in the art.

7. Applicant's argument that there is no reasonable expectation of success is not persuasive.

Applicant argues that the combination of the references does not arrive at the claimed invention. However, again, as stated above, the Kobayashi reference was used in order to demonstrate that vapor deposition of a continuous layer is well known in the art. Further, Wei defines the claimed invention except that the detection matrix is a continuous vapor deposited layer. Therefore one of ordinary skill in the art would be motivated to use the conventional vapor deposition method disclosed by Kobayashi to form a continuous layer with the invention as disclosed by Wei in order to increase the effective detection area.

8. Applicant's argument that the references do not teach or suggest all the claim limitations are not persuasive.

The limitations of the independent claims are disclosed in the abovementioned paragraphs. Again, the Kobayashi reference was used to demonstrate that the vapor deposition of a continuous layer is well known in the art. The examiner believes that all of the limitations have been disclosed in the combined Wei/Kobayashi references.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Thursday 7-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christine Sung
Examiner
Art Unit 2878

CS


DAVID PORTA
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